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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,986	01/10/2006	Takeshi Kobayashi	126576	7116
25944	7590	12/11/2007		
OLIFF & BERRIDGE, PLC P.O. BOX 320850 ALEXANDRIA, VA 22320-4850				
			EXAMINER WILSON, GREGORY A	
			ART UNIT 3749	PAPER NUMBER
			MAIL DATE 12/11/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/563,986

Applicant(s)

KOBAYASHI, TAKESHI

Examiner

Gregory A. Wilson

Art Unit

3749

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10/2/07.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 11-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 27 and 28 is/are allowed.
- 6) ☒ Claim(s) 11-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

**Claims 11-26** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant has amended the claims to now recite that the supporting parts and the column member are a monolithic piece of a same material in order to overcome the previous rejection, however this newly added recitation constitutes new matter since having a supporting part and column member formed of a monolithic piece of a same material, is not taught by the applicants originally presented specification.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 11-19 and 26** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Watanabe et al (5,482,558) in view of Buckley et al (6,488,497)**. **Watanabe et al** discloses a vertical boat (3) for heat treatment and includes a top plate (31), a bottom plate (32), circular arc shaped column members (41-44), a plurality of grooves (220) in the column members, a supporting part (5A, 5B) (SEE Figure 5) for horizontally supporting a silicon wafer (W) to be treated being formed between the grooves and is inserted from the grooves of the column members and supported along the circumferential part of a surface of the supporting part, with regard to claims 12 and 13, Figures 3, 5 and 6 support the teaching of the column members having supporting parts each of which has a center angle as claimed, the space between column members (42 & 43) and (41 & 44) serve as vents when the supporting parts are positioned in the structure. **Watanabe et al** does not specifically recite that the supporting part and the column member is formed of a monolithic piece of a same material. **Buckley et al** discloses a vertical ceramic wafer boat with arcuate wafer support arms which are integrally formed as a monolithic structure (SEE column 5, lines 20-30). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains to have assembled the structure of **Watanabe et al** from a single monolithic structure as is well known in the art and taught by **Buckley et al** for the purpose of minimizing the potential for generating damaging particles by having a plurality of parts which could affect the surface of the wafers.

**Claims 20-25** rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al (5,482,558) in view Buckley et al (6,488,497) and further in view of Nakai et al (6,474,987). Watanabe et al Buckley et al teaches the applicants primary inventive concept, but does not specifically teach a supporting surface that is sloped nor having a edge which is chamfered. Nakai et al teaches in Figures 4 & 5 and column 3, lines 44-57, a supporting surface of a supporting part being chamfered and the supporting part having downward sloped surfaces. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains to have modified the supporting surface of Watanabe et al in view of Buckley et al to include a sloped surface of Nakai et al for the purpose of preventing a flaw on the backside of a wafer, additionally, it would have been obvious to modify the supporting surface of Watanabe et al to have a chamfered edge so as not to cause a point of contact.

***Allowable Subject Matter***

**Claims 27 and 28** are allowed.

***Response to Arguments***

Applicant's arguments filed 10/2/07 have been fully considered but they are not persuasive. Applicant has amended claim 11 to clarify that the supporting parts and the column member are a monolithic piece of a same material, and are not connected by fastening and welding and furthermore states that such a construction would not have

been obvious to those of ordinary skill in the art. Examiner has shown that making a wafer support with supporting parts and the column members out of a monolithic piece of a same material is not novel to the art as shown in Buckley et al (column 4, lines 48-57 and column 5, lines 20-30). Buckley et al and Watanbe et al are considered relevant arts because they both disclose vertical boats for supporting wafers during heat treatment, Watanabe et al does not teach an integral structure, but is improved by the teaching of Buckley et al which teaches the benefit of minimizing the potential for generating damaging particles by having a plurality of parts which could affect the surface of the wafers. The applicants disclosed advantages of a resulting structure with high surface accuracy and high strength which result in annealed wafers having a decreased probability of a slip dislocation or a backside flaw based on the dispersed load of the wafer are advantages inherent in the structure of Buckley et al.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

Application/Control Number:  
10/563,986  
Art Unit: 3749

Page 6

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

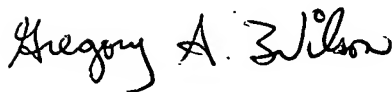
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory A. Wilson whose telephone number is (571)272-4882. The examiner can normally be reached on 7 am - 4:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve McAllister can be reached on (571) 272-6785. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number:  
10/563,986  
Art Unit: 3749

Page 7

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Gaw  
December 5, 2007